

Optional/alternative Alignment Study Report

2.0 PROJECT DESCRIPTION

2.1 General

The NHAI has been assigned the work Consultancy Services for Development of Economic corridors, Inter-Corridors, Feeder routes and coastal road primarily to improve freight movement in the country, Lot-3/Odisha & Jharkhand/Package-2.Length-359Km, (Revised Length-463Km upto sabbavaram). The Whole Alignment passes through three states ie. Chhattisgarh (Length Km 124.661), Odisha (Length Km 240.110) and Andhra Pradesh (Length Km 100.145).

2.2 Identified Alternate Routes

The project, areas were studied in details and the existing road networks were analyzed to identify possible alternate alignments between the start (Abhanpur, Chhattisgarh) and end point of project (sabbavaram, Andhra Pradesh). Four different alignments have been identified in the project which also includes the alignment proposed earlier. The alternative alignments are as follows:

Yellow Alignment: (Kurud-Dugli-Raigarh-Umerkote-Dabugaon-Nowrangpur-Borigumma-Koraput-Pottangi-Salur-Mentada-Alamanda -Visakhapatnam)

Green Alignment: (Abhanpur-Mohera-Pendara-Jharigaon-Bhairabsingipur-Renga-Simageda-Mentada-Alamanda-Visakhapatnam)

Blue Alignment: (Abhanpur-Kurud-Mawalipura-Palana-Bhairabsingipur-Renga-Simageda-Mentada-Alamanda-Visakhapatnam)

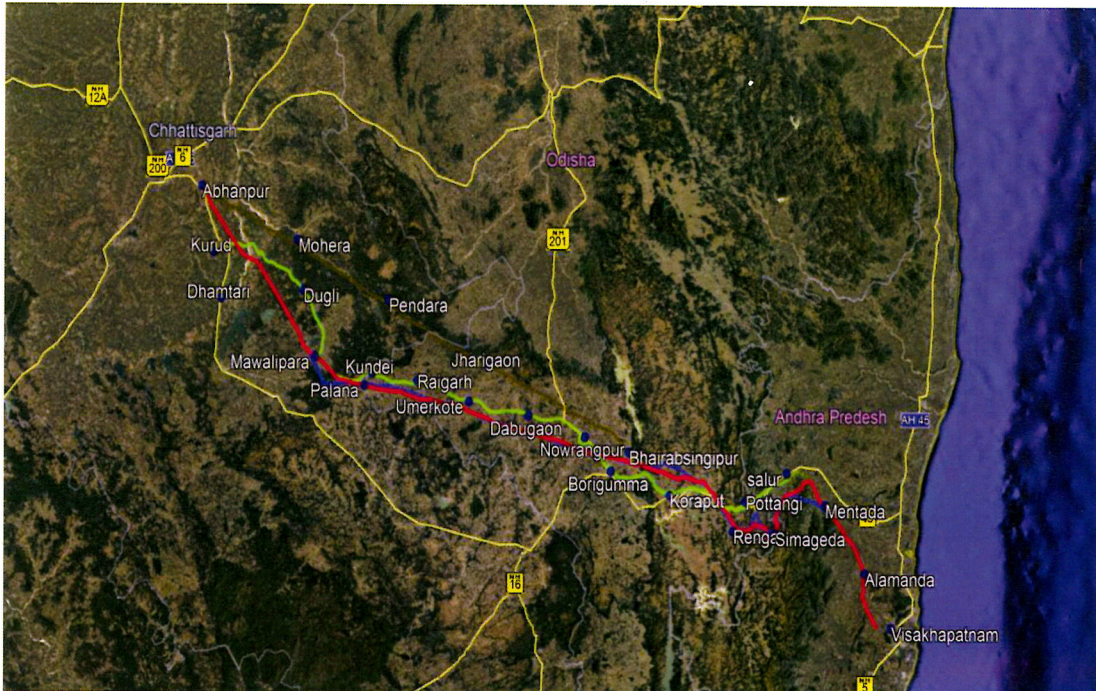
Red Alignment: (Abhanpur-Kurud-Mawalipura-Palana-Bhairabsingipur-Renga-Simageda-Mentada-Alamanda-Visakhapatnam)

***Note-** All four above mentioned alignment was shown to the secretary, but the detailed comparison was shown between Red and Blue alignment because of its high feasibility. There are minor deviations between red and blue alignments.

The identified alternate alignments, respective influence area and major towns are marked and shown in the Fig.2.1

Fig. 2.1 Google view of proposed Alignment from Raipur to Visakhapatnam Andhra Pradesh


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Since, this alignment report is being prepared for Chhattisgarh, all the data mentioned ahead includes only the details related to the same State. It is clear from the above shown figure, that there are four alignment options which was prepared before. In Chhattisgarh, four alignment options were compared i.e. between Red (option 3B) and Blue (Option 3A) all the options but before reaching to Andhra Pradesh border the alignment comparison reduced from four options to two options which is Yellow (Option 1), Green (Option 2), Blue (Option 3A) and Red (option 3B).

Option 1 is the alignment which is following existing road with improvement, total length of this alignment is 136km. Near sainunda approximately 11km length of this option is passing through ecosensitive zone of sitanadi-Udanti wildlife sanctuary which is the drawback of this option. In plain the design speed is 100kmph and in hill area it is 50kmph.

Option 2 i.e. 'Green' alignment which is totally green field unlike option 1, total length of this option is approximately 132Km. 28.2Km length of this alignment is passing through Core zone of sitanadi-Udanti Wild-Life sanctuary. Length is shorter in comparison to option 1 in this option but involvement of length in wildlife is very high which is the drawback of this option. In both the plain and hill area the achieved design speed is 100kmph.

Option 3A: The 'Blue' alignment is also green field having an approximate length of 130km. Length of this option is comparatively shorter than both the above options. In both the plain and hill area the achieved design speed is 100kmph.

Whereas, **Option 3B** is the 'Red' alignment which is green filed having a length of 123.210 km. Near sainunda 6.100km of length passes through high hillocks and there is a requirement of tunnel of length 4.53km. In both the plain and hill area the achieved design speed is

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100kmph. This is the most effective option in respect of length saving. During the meeting with HounarableSecratery on 03.01.2109 all the above four options were shown, but detailed discussion happened between option 3A and 3B. It is also clear from above summary that option 3B is the most suitable alignment in respect to length, time saving as well as geometry.

Fig. 2.2 Google view of proposed Alignment of Chhattisgarh

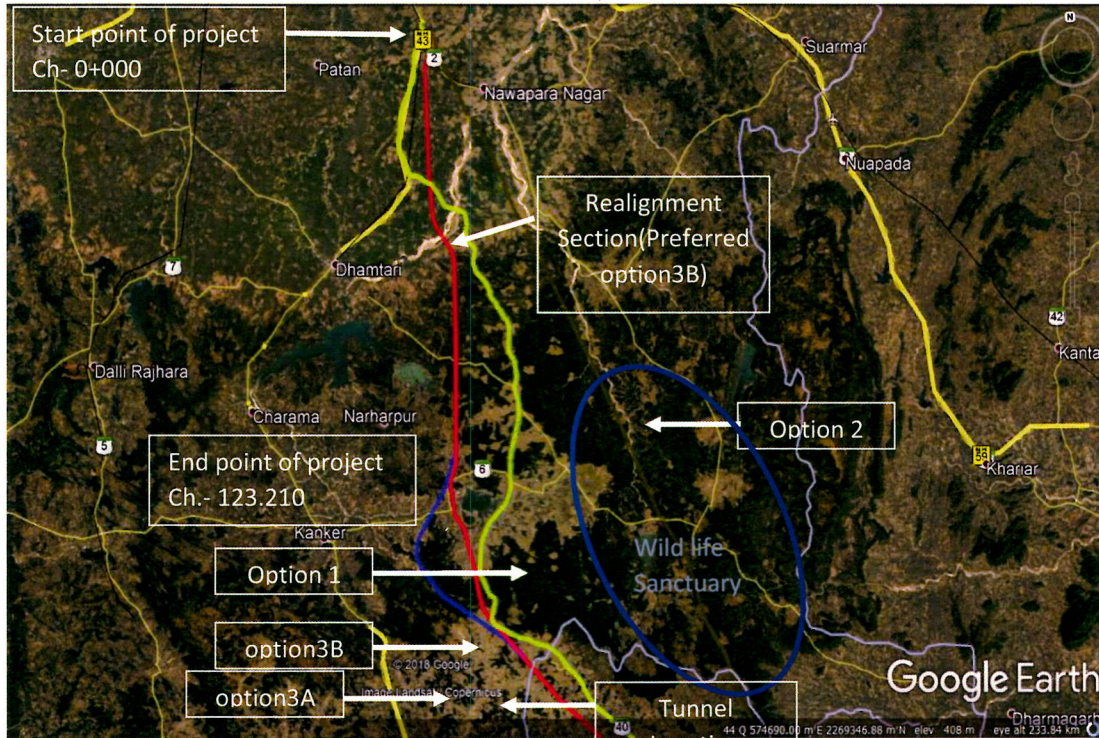


Fig. 2.3: Forest and Wildlife Boundary shown in GIS Map

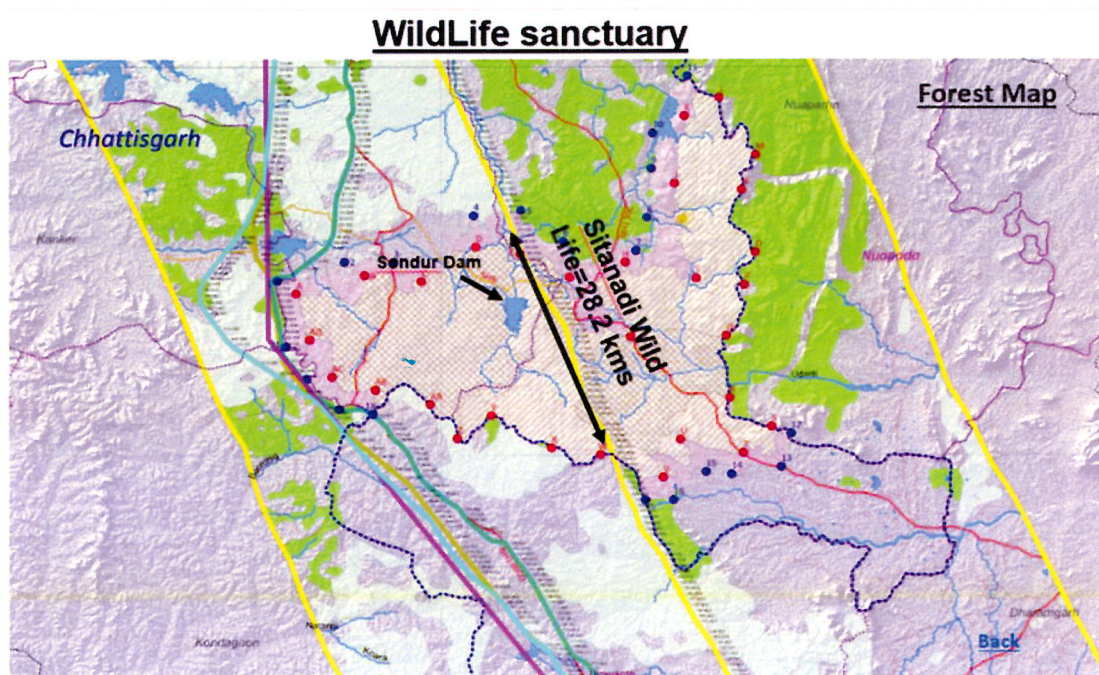
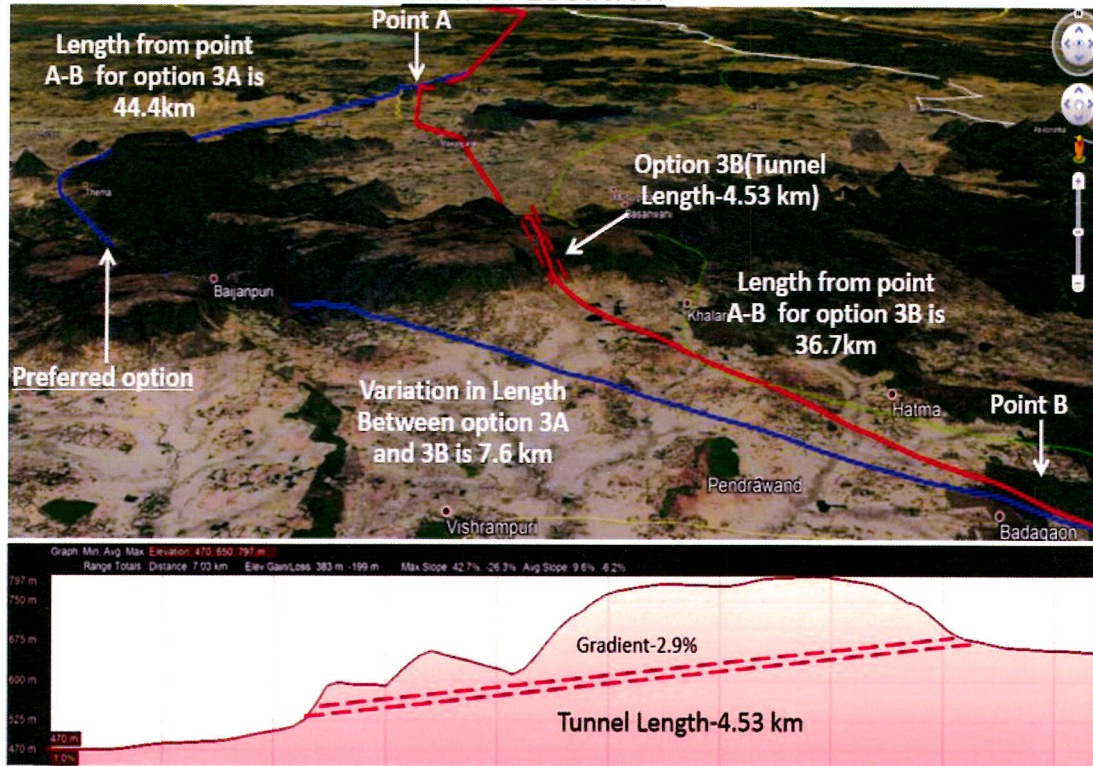


Fig. 2.4: Comparison between Alignment options of Chhattisgarh

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Tunnel Location



Profile of option 3B

2.3 Details of optional alignment


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Summarized details of Alternative study

Sl. No	Description	Option-1 (Brown & Green Field)	Option-2 (Green Field)	Option-3A (Green Field)	Option-3B (Green Field)
1.	Total Design Length (Km)	132	118.8	123.23	124.661
2.	Plain Terrain (Km)	126	111.8	114.73	116.661
3.	Hilly Terrain (Km)	6	7	8.5	8
4.	Brown Field (Km)	18.740	-	-	-
5.	Green Field (Km)	113.26	118.8	123.23	124.661
6.	Wild life Sanctuary Length (Km)	NA	28	NA	NA
7.	Road length in Forest (Km)	47.81	59.98	48.175	47.88
8.	Land Required (Ha)	720	622	670	705.83
9.	Total Forest (Ha)	209.502	264.359	232.83	228.0325
10.	Land Cost (Cr.)	219.04	153.45	200.45	208.91
11.	R&R Cost (Cr.)	19.80	17.82	18.48	18.70
12.	Environment & Forest Cost (Cr.)	135.79	128.91	127.43	128.02
13.	Utility Cost (Cr.)	19.80	17.82	18.48	18.70
14.	Tunnel Length (Km)	NA	NA	NA	2.7
15.	Tunnel Cost (Cr.)	NA	NA	NA	810
16.	Viaduct Length (Km)	1.1	0.5	0.8	2
17.	Viaduct Cost (Cr.)	130	59.08	94.53	236.00
18.	Total Civil Cost (Cr.)	2437.00	2144.00	2253.00	3161.00
19.	Centages (Cr.)	530.64	378.11	359.94	304.12
20.	Per Km Civil Cost (Cr.)	18.46	18.04	18.28	25.36
21.	Total Project Cost Including all (Cr.)	3124.46	4929.17	2542.67	4068.16
22.	Per Km Cost Including All (Cr.)	24.55	23.76	24.31	32.62
23.	Design Speed(Kmph)	50 Kmph for Hilly Terrain & 100 Kmph for Plain Terrain	100 Kmph for Hilly Terrain & 100 Kmph for Plain Terrain	100 Kmph for both Hilly & Plain Terrain	100 Kmph for both Hilly & Plain Terrain
24.	Achieved Riding Speed (Kmph)	50	70	70	70


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25.	Travel Time (Hrs)	2.7	1.7	1.8	1.8
26.	Remarks	Design Speed is less in Hilly Terrain	Design Speed is less in Hilly Terrain	Forest Length is more than the Option-3B	Forest Length is less than the Option 3A
27.	Recommendation	Not recommended due to total & forest length is more than the other options	Not recommended due to more length in forest & high cost also. Near CG & OD border the alignment passes through tiger reserve forest in CG portion	Not recommended due to forest length is more than the Option-3B	Recommended due to less forest length and technical feasibility

Most Suitable option is 3B and selected for development of project road.


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